

We claim:

1. A method of detecting oxidants in a biological sample comprising:
adding a source of ferrous ions to said sample, whereby the presence of oxidants in said sample oxidize at least a portion of said ferrous ions to ferric ions;
adding a chromogenic compound to said sample, whereby said chromogenic compound reacts with at least a portion of any ferric ions present in said sample; and
detecting for the product of said chromogenic compound-ferric ion reaction;
whereby the detection of said chromogenic compound-ferric ion reaction product indicates the presence of oxidants in said sample.
2. The method of claim 1 wherein said sample is a biological sample.
3. The method of claim 2 wherein said sample is urine.
4. The method of claim 1 wherein said source of ferrous ions is ferrous ammonium sulfate.
5. The method of claim 1 wherein said oxidants are selected from the group consisting of ferric, chromates, permanganates, iodates, periodates, oxychlorides, hydroperoxides, hydrogen peroxides, persulfates, oxone, *tert*-butyl hydrogen peroxide, cumene hydrogen peroxide, and nitrites.
6. The method of claim 1 wherein said chromogenic compound-ferric ion reaction product is a chromogen from chromogenic oxidation of said chromogenic compound.
7. The method of claim 6, wherein said chromogenic compound is selected from the group consisting of 2,2'-Azino-bis(3-ethylbenzthiazoline-6-sulfonic acid), N,N-Dimethylphenylenediamine, and 2-Amino-p-cresol.
8. The method of claim 7 wherein said chromogen is detected visually.

9. The method of claim 7 wherein said chromogen is detected via spectrophotometric analysis.
10. The method of claim 4 wherein said ferrous ions are the product of dissolving ferrous ammonium sulfate in hydrochloric acid in the presence of vanadium.
11. The method of claim 1 wherein said chromogenic compound-ferric ion reaction product is a chromogenic complex.
12. The method of claim 11 wherein said chromogenic compound is selected from the group consisting of Xylenol orange, 8-Hydroxy-7-iodo-5-quinolinesulfonic acid, and 4,5-Dihydroxy-1,3-benzene-di-sulfonic acid.
13. The method of claim 12 wherein said chromogenic complex is detected visually.
14. The method of claim 12 wherein said chromogenic complex is detected via spectrophotometric means.
15. The method of claim 12 wherein said ferrous ion is present in excess.
16. The method of claim 1 wherein said detecting step comprises detecting a concentration of said reaction product.
17. The method of claim 16 wherein said concentration is determined by comparing an intensity of said sample to intensities of standards having known concentrations of oxidants.
18. The method of claim 17 wherein said comparison is performed using spectrophotometric means.
19. A method of detecting adulteration of a urine sample comprising:
 - adding a source of ferrous ions to a urine sample;
 - adding a chromogenic compound to said urine sample;

detecting the presence or absence of a chromogenic reaction product;
determining a concentration of said chromogenic reaction product; and
determining if said concentration signifies adulteration of said urine sample.

20. The method of claim 19 wherein said source of ferrous ions is ferrous ammonium sulfate.

21. The method of claim 19 wherein said chromogenic compound is selected from the group consisting of 2,2'-Azino-bis(3-ethylbenzthiazoline-6-sulfonic acid), N,N-Dimethylphenylenediamine, and 2-Amino-p-cresol, and wherein said chromogenic reaction product is a chromogenic oxidation product.

22. The method of claim 19 wherein said chromogenic compound is selected from the group consisting of Xylenol orange, 8-Hydroxy-7-iodo-5-quinolinesulfonic acid, and 4,5-Dihydroxy-1,3-benzene-di-sulfonic acid, and wherein said chromogenic reaction product is a chromogenic complex.

23. The method of claim 19 wherein said chromogenic reaction product is detected visually.

24. The method of claim 19 wherein said concentration of chromogenic reaction product is determined spectrophotometrically.

25. The method of claim 24 wherein said concentration is determined in milliequivalents per liter of oxidants.

26. The method of claim 25 wherein said milliequivalents per liter is based on comparison of said spectrophotometric results with standards having known milliequivalents per liter.

27. The method of claim 26 wherein said adulteration determination is based on comparison to an oxidizing property of unadulterated urine.

28. The method of claim 27 wherein said sample is determined to be adulterated if the oxidant concentration is determined to exceed 29 milliequivalents per liter.